

## DRAWINGS ATTACHED

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## (54) INKING APPARATUS FOR INKING A PRINTING FORME

(71) We, MASCHINENFABRIK DORNBUSCH & Co. K.G., of Kalanderstrasse 19-25, 415 Krefeld, Germany, a German Kommanditgesellschaft, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

THE INVENTION relates to an inking apparatus for inking a printing forme.

It has long been known in the inking of a press forme, in particular for photogravure (intaglio) printing, to deliver ink from an ink supply to a printing cylinder through the intermediary of a transfer roller and remove excess ink by means of a doctor blade. Likewise, inking apparatuses are used in which the ink is held in a so-called inking duct extending longitudinally above a duct blade. Although such inking apparatuses are far simpler to construct than other types of inking apparatus, such known inking apparatuses are affected with the following disadvantages: firstly, in practical use the ink tends to thicken or clog in the gap of the duct blade, resulting in uneven inking of the form; and secondly, foreign bodies may easily become precipitated in front of the duct blade with resulting streaks in printing.

According to the invention there is provided an inking apparatus for inking a printing forme, the inking apparatus comprising an inking duct, a duct blade and a closed circuit for the flow of ink, the inking duct being arranged above the duct blade, whilst the closed circuit comprises an ink tank arranged above the inking duct, a pump, a riser pipe leading through the pumps from the inking duct to the ink tank and a downcomer pipe leading from the ink tank to the duct.

In order to ensure the most vigorous possible circulation of the ink it is preferred to arrange the riser and downcomer pipes

respectively at opposite ends or on opposite sides of the ink tank and inking duct respectively.

It is also preferred for the downcomer pipe to be equipped with an adjustable control valve by means of which the quantity of ink in the circuit can be regulated, so that the quantity of ink in the inking duct can thus always be maintained at a constant level.

The precipitation of solid matter contained in the ink is preferably ensured by a strainer or screen fitted between the riser and the downcomer in the ink tank.

Preferably the ink is maintained at a constant viscosity by means of a solvent tank communicating with the ink tank through an intermediate control valve, the volume or rate of flow of the solvent medium being controlled by a viscometer fitted in the ink tank. By this means, the viscosity of the ink in the tank is periodically metered and any increase from the preset rating corrected by admitting solvent from the solvent tank.

The invention will be described by way of example with reference to the accompanying drawing, which is an illustration of an inking apparatus in accordance with the invention.

Referring to the drawing, the illustrated inking apparatus 2 comprises an inking duct 3 which is fitted above a duct blade 1 of the inking apparatus 2. A riser pipe 5 dips in the ink at one side wall or partition of the inking duct 3, and leads through a pump 6 to an ink tank 7 arranged above the inking duct 3. A downcomer pipe 8 equipped with a regulating valve 9 leads from the end of the ink tank opposite to the end at which the riser 5 enters, back to the inking duct 3; in particular, next to the side wall or partition 10 thereof. A strainer or screen 11 is fitted in the ink tank 7 between the riser 5 and the downcomer 8. The ink is 90

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thus continuously maintained in motion through the circuit, and thereby freed from foreign bodies.

A solvent tank 12 is fitted above the ink tank 7, communicating through a feeder comprising a downcomer 13 and a regulating valve 14, with the ink tank 7. The action of the valve 14 is controlled by a viscometer 15, fitted on the cover of the ink tank 7, and dipping into the ink contained therein. The electric lead to the viscometer 15 is shown at 16, and the lead thence to the valve 14 is shown at 17. Should the viscometer detect any increase of the viscosity of the ink from the preset rating (ink thicker than desired), the valve 14 opens and solvent admitted from the solvent tank 12 into the ink tank 7 until the rated viscosity is restored. The viscometer may have a twin probe for detecting the viscosity.

Reference is directed to co-pending patent application No. 53145/72 (Serial No. 1 318 582).

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#### WHAT WE CLAIM IS:—

1. An inking apparatus for inking a printing forme, the inking apparatus comprising an inking duct, a duct blade and a closed circuit for the flow of ink, the inking duct being arranged above the duct blade, whilst the closed circuit comprises an ink tank arranged above the inking duct.

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a pump, a riser pipe leading through the pump from the inking duct to the ink tank 30 and a downcomer pipe leading from the ink tank to the inking duct.

2. An inking apparatus according to claim 1, wherein the riser pipe and the downcomer pipe are arranged at opposite 35 ends or on opposite sides of the inking duct and of the ink tank.

3. An inking apparatus according to claim 1 or 2, wherein the downcomer pipe is equipped with an adjustable control valve. 40

4. An inking apparatus according to any one of claims 1 to 3, wherein a strainer or screen is provided in the ink tank between the riser pipe and the downcomer pipe.

5. An inking apparatus according to any one of claims 1 to 4, wherein a solvent tank is arranged to communicate with the ink tank by an adjustable feeder element and a viscometer is arranged in the ink tank to control flow of solvent from the solvent tank 50 to the ink tank.

6. An inking apparatus substantially as described with reference to the accompanying drawing.

7. An inking apparatus according to any 55 preceding claim, incorporated in a printing machine.

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COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of  
the Original on a reduced scale*

